GUSTO

Suggested Outline for Presentation by Mr. Bissell

The President's Scientific Advisory Committee, headed by Dr. Killian, recommended approximately a year and a half ago that feasibility studies looking toward a follow-on reconnaissance manned vehicle be undertaken. The President approved the idea of a feasibility study and stressed the security with which all actions in this regard should be taken. Mr. Bissell was then approached and requested to undertake action.

Mr. Bissell, in early 1958, formed a panel under the chairmanship of Dr. Edwin Land, with membership consisting of Dr. Purcell, Dr. Stevers, Dr. Courtland Perkins, Mr. Donovan, Mr. Richard Horner and Gen. Swofford of the Air Force, Col. Appold of ARDC, Mr. Garrison Norton of the Navy, and Mr. Bissell. A series of meetings were convened to review approaches to the problem and at later meetings detailed proposals were submitted by Lockheed and Convair, as well as [redacted] 25X1A

25X1A [redacted]

25X1D [redacted]

25X1A There had been many Lockheed designs, the latest with altitude of 85,000 to [redacted] feet, Mach 3.2, turbojet-powered with two
25X1A J-58's, [redacted] range, a titanium aircraft. With pre and post strike aerial refueling, this vehicle's range would be [redacted] miles. 25X1A
KC-135's would do the refueling, both KC-135 and receiver using inertial navigation systems for rendez-vous, backed up by other rendez-vous techniques. The basic aircraft would be quite large (90,000 pounds) with high radar reflectivity and a higher noise pattern past supersonic than the Convair proposal. Titanium would be used which would involve new fabrication techniques. Could be used on a single stage concept and staged from forward bases. If
25X1A the latter, a [redacted] mile range is the prospect. Number of maintenance hours required per flight is . However, it would not require a mother aircraft.

Hydrogen-powered aircraft proposals were reviewed as well as other advanced Air Force ideas.

In any staging, security would be a problem since use of overseas bases would expose to view a large aircraft different from any other in the Air Force inventory. The rendez-vous mechanism is highly reliable at this point since there are several back-up systems basic to the inertial navigation systems in both receiver and tanker, and the only problem is in relation to refinement of a given successful system.

A pressure suit would be required with its attendant discomforts. Since the pressure suit does not now exist, it could conceivably pace this development. Time span from 1 July would probably be about 18 months to first flight. There would be less infra-red emission from the Lockheed aircraft.

Past experience with Lockheed with regard to dates and cost estimates has been extremely favorable; this in contrast to no previous project experience with Convair.

The Convair proposal consists of a mother aircraft (B-58) plus a smaller reconnaissance vehicle carried aloft and air-started, then released at altitude. It has a higher Mach number (4) than the Lockheed proposal and less maneuverability. Radar reflectivity is low and estimated time span to first flight is 16 to 18 months after 1 July. Ramjet fuel would be JP-150, which is available now. The RB-58 can be air-refueled or the two vehicle combination can be staged from advance bases with attendant security problems.

25X1A

Range, [redacted] Maintenance equipment and personnel needed would be more than twice that needed for the Lockheed aircraft (B-58 plus Super).

During wind tunnel tests, subsonic drag has been the major aerodynamic problem although inlet duct tests are still going on. Structural wing panels have been built out of special steel and a brazing technique has been developed and looks favorable.

A capsule for the pilot eliminates pressure suit problems and should lead to pilot comfort. By using a mother aircraft for air launch, there is a double chance of mishap.

Although less experience has been gained with regard to production and reliability of ramjets, little is known of turbojet engines employing a full time after burner. In this instance, of course, much experience has been gained with regard to both after burners and turbojet engines. The J-58 has been tested and is in the development stage.

With regard to cost estimates, both Lockheed and Convair are about the same--approximately [redacted] 25X1A

An operational comparative study is available, and the staff here is at your service for further investigation if you desire.